

tumors, also found in this strain, were a further interesting and striking instance of inheritance of a tumor of specific type in a specific organ. A female, inbred with her brother, gave rise to a strain producing 3 out of the 4 uterine tumors found in the entire group of animals studied in the first 2000 autopsies. Outbred with a male of another group, she obtained a strain producing the only other uterine tumor of the same series of autopsies, and in addition, her direct descendants by both inbreeding and hybridization, headed families producing further uterine tumors. A suggestion substantiating trauma as an etiological factor is given in connection with a curious fibromatous growth, infiltrative in character, which appears on the back and sides, following repeated light scratches, severe enough to result in scarring. An area of baldness develops, followed by an induration which becomes deeper rather than wider. Finally the entire posterior portion of the body undergoes a stiffening, and death results from inability to move to food and water. This form of tumor is inheritable, and has been followed through two successive generations. The author thus claims that tumors of specific organs and specific types are inheritable, and that by selective breeding it is possible to develop a higher percentage of any type of tumor, which may then be carried into another line, free of tumor, and run true to form in the offspring. In another paper (*Jour. Cancer Res.*, 1916, i, 503) the author develops this theme further, in a study of the inheritability of spontaneous tumors of the liver in mice. This type was selected as one which would offer substantial evidence on the influence of inheritance on tumor development as this tumor is not so frequently found as those in the lung and breast, nor is it so rare as to be questioned, as might be the case with tumors of the uterus and stomach. All the liver tumors, including 62 primary and 17 secondary liver tumors, have come from one strain and the animals showing this type of new growth all have an identical ancestry. A few examples will serve to illustrate the manner in which the details have been worked out. A male having an adenoma of the liver, mated to a female with liver tumor, gave a family in which there was a high percentage of liver tumors. The same animal, mated to a female without liver tumor showed no liver tumor in the offspring, though the percentage of tumor in this family was high. Another strain, especially selected to show the inheritability of liver tumor, was sired by a male with a malignant adenoma of the liver. The male offspring constantly showed tumor, though always bred to a female without tumor, and not of the direct line. In the fifth and sixth generation, primary liver tumors again appeared. The data presented appear convincing, especially since outside of the author's stock, but one instance of liver tumor has been reported and in view of the fact that in attaining these results selective breeding has been the only manipulation employed.

**On the Etiology of Scarlet Fever.** The infecting agent of scarlet fever still baffles the investigator. Periodically researches are undertaken in an attempt to determine the infecting microorganism and often some bacterium is found, which, though satisfying the investigator in his studies, has proved disappointing to others in failing to fulfil the requirements proving it the causative factor of scarlet fever. During 1916 two new microorganisms were offered by independent

workers as the etiological factor of scarlet fever. MAIR (*Jour. Path. and Bact.*, 1916, xx, 366) isolated from the throats of scarlet fever patients a micrococcus which he called the *Diplococcus scarlatinae* and which on cultivation showed itself to be related either to the pneumococcus group or to the group of streptococcus viridans. Mair himself believed that the relation with the pneumococcus was quite close, although capsules as a rule could not be demonstrated. The microorganism produced green colonies on blood agar, caused milk to clot and become acid, and fermented many of the carbohydrates including lactose, salicin and inulin. Mannite was fermented by some strains but not by all. The microorganism dissolved in bile, a characteristic which is distinctive of the pneumococcus. A low pathogenicity was demonstrated for mice and rats while rabbits showed a greater susceptibility. Guinea-pigs were fairly refractile. The author claimed to have obtained peculiar reactions in the monkey associated with fever, Doehle's bodies in the leukocytes and a spreading inflammation beneath the skin. Local sloughing or abscess formation ending in recovery or toxemic death in the second, third or fourth week in treated monkeys, was regarded as typical by the author for the *Diplococcus scarlatinae*. Control experiments, using typical pneumococci from other sources, gave no such reactions. A certain grade of immunity was conferred upon infected monkeys which recovered. The author was able to isolate the microorganism from the throat of 42 patients out of a total of 50; while, in a control series of 35 cases, no organisms corresponding to the *Diplococcus scarlatinae* were found, although from 12 of them typical pneumococci were obtained. In concluding upon the specific nature of the *Diplococcus scarlatinae*, the author placed weight upon the finding of this microorganism in 80 per cent. of the cases, the reproduction in the monkey of "a disease which in many respects resembles scarlet fever," and the development in the monkey of "scarlatinal rheumatism." The rash of scarlet fever has not been observed in animals. Almost simultaneously with the report by Mair, a preliminary note upon the same subject was issued by MALLORY and MEDLAR (*Jour. Med. Res.*, 1916, xxxiv, 127) and was subsequently followed by a more extensive paper (*Jour. Med. Res.*, 1916, xxxv, 209). These studies were mainly of a histological kind, wherein tissues obtained at autopsy from cases of scarlet fever were analyzed. These studies were supplemented by cultural methods upon about 60 patients. The authors found a Gram-positive bacillus (*B. scarlatinae*) which is usually less virulent than the diphtheria bacillus but which, as a rule, affects the same localities, the tonsils and pharynx, and in severe cases may extend to the adjoining tissues. The organism is held responsible for the necrosis of the lining epithelium and the exudation of serum and leucocytes occurring in the deeper structures. In uncomplicated scarlet fever the bacilli were found in large numbers in lesions in the respiratory tract, from which, however, they rapidly disappeared following the appearance of the eruption. Occasionally the microorganisms were found for longer periods of time. On three occasions a similar bacillus was found in stained sections of postmortem material, while cultures of a similar microorganism were obtained in five instances at autopsy. The bacillus was smaller than that of diphtheria but appeared to belong to the same group of microorganisms. In a few instances

serum from scarlet fever patients gave a positive complement-fixation test. Animal experiments using monkeys, rabbits, guinea-pigs, rats and mice gave inclusive results.

**War Nephritis.**—The present war has demonstrated many new phases in the development of disease as well as brought to light a number of conditions previously unknown to medical literature. The very character of the warfare on land has placed the individuals of the armies under conditions which have heretofore been entirely unknown to civil and military life. The trenches, although not new, have been developed upon such a scale that the soldier makes his home day and night in these constructions, which at different seasons in the year place him under conditions, particularly in exposure to wet and cold, to which he has been unaccustomed. Furthermore, the enormity of the armies gathered upon the field of war is so tremendous that the hygienic handling is one of great difficulty. There are, therefore, many circumstances which may influence the spread of infection and the development of disease. RUDOLPH (*Canadian Med. Assn. Jour.*, 1917, vii, 289) in a recent communication discusses the occurrence of war nephritis or what others have presumed to call "trench nephritis." This disease is not entirely new, as it was observed in the Civil War. The author had an opportunity of seeing about 200 cases of this condition. Its development in the army occurs almost in epidemic form so that in certain seasons numerous men seek the hospital for renal disturbances. Rudolph points out that the term trench nephritis is a misnomer for it is unnecessary to have lived in the trenches to suffer the affection. In the majority of instances the individuals had previously been robust and without an ailment. A few had had an antecedent sore throat or bronchitis. Edema was an early manifestation and was commonly the condition which warned the individual of his trouble. Headache was not uncommon and nocturnal dyspnea occurred in 78 per cent. A rise in blood-pressure was noted in about one-half of the cases studied. In a number of instances the nephritis was a recurrent one, the individual giving a history of previous illness having no relation to the military conditions. The cases which were clearly primary varied from mild to very acute attacks showing coma and convulsions. In the series reported 6 per cent. had convulsions. Only one case died and this was a recurrent one with small granular kidneys. The author believes that the condition has its basis in infection and is of the nature of a glomerulonephritis.

**The Pathological Effects of Streptococcus from Cases of Poliomyelitis and Other Sources.**—BULL (*Jour. Exper. Med.*, 1917, xxv, 557) inoculated guinea-pigs, cats, dogs, rabbits and monkeys with cultures from the tonsils of 32 cases of poliomyelitis; carrying on, in other words, the same experiments as Mathers, Herzog, Nuzum and Rosenow. His results were widely different from those of these previous authors who claim to have produced poliomyelitis clinically and pathologically by the inoculation of streptococci into the same laboratory animals. In no case was the author able to induce conditions resembling poliomyelitis either clinically or pathologically. A considerable percentage of rabbits and a similar percentage of some of the other animals developed lesions